

REMARKS

The Office Action indicated that the subject matter of Claims 8 and 9 were allowable if they were rewritten in independent form. Applicant requests that this allowed subject matter be held in abeyance until the Examiner has an opportunity to review the amended claim and the new claims presented herewith.

The present invention is directed to a mounting of arc tubes in a lamp environment and more particularly, helical arc tubes having a pair of arc tube end portions. As can be readily appreciated, this is a highly competitive industry and relatively large companies with scientists and engineers have been attempting to improve utilization of arc tubes to conserve energy while providing an equivalent illumination to incandescent bulbs.

The cost of labor in manufacturing requirements in the assembling of such products are important design considerations and can make a difference between a successful product and an unsuccessful product in cost and performance. In this relatively crowded field, the present invention provides an improved product and method of manufacturing that facilitates the mounting of the end portions of an arc tube into a holding member which can be advantageously manufactured from a plastic resin as an integral part.

A bottom wall of the holding member can include a pair of covering units for receiving the end portions of the arc tube. The covering units extend upward from the bottom wall and have insertion openings of approximately the diameter of the end portions of the arc tube. An upper half portion of the insertion opening can be provided on the covering unit while a curved guiding recess or groove can provide the lower half of the insertion opening as the recess extends into the bottom wall and beneath the covering unit.

The end portions of the helical tube are placed first into contact with the guide grooves or recesses and appropriately rotated about the axis of both the helical tube and the bottom wall.

In one version of the invention, lead wires can be advantageously initially aligned with openings in the insertion guiding recesses so that the lead wires extend beneath the bottom wall into the base of the lamp and then subsequently, the end portions of the arc tubes can contact the recesses or guiding grooves and be rotated to extend through the insertion openings. Adhesive can be utilized in an aesthetically pleasing manner for fastening the end portions of the tube to the bottom wall. Notches or slits can be provided in supporting units that can also be integrally molded with the bottom wall to provide spacing for the lead wires to facilitate the mounting to a ballast.

Thus, the lamp can be for example, a self ballast fluorescent lamp with a helical tube to provide a very compact configuration capable of replacing incandescent bulbs.

The Office Action contended that Claims 1-5 and 10-13 are completely anticipated by *Watson et al.* (U.S. Patent No. 5,675,215) under 35 U.S.C. §102.

“An anticipating reference must describe the patented subject matter with sufficient clarity and detail to establish that the subject matter existed in the prior art and that such existence would be recognized by persons of ordinary skill in the field of the invention.” *See In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 678, 7 USPQ2d 1315, 1317 (Fed. Cir. 1988).

The *Watson et al.* reference was directed to a compact fluorescent lamp and is primarily concerned with the potential of light loss, particularly when mounting the arc tube in the slotted sections of a mounting cap. See Column 3, Lines 24-35. A mounting cap could be split into two separate components and the openings are formed at an angle to receive the end segments of the

lamp envelope and to minimize that portion of the tube end segments that must reside within the mounting cup to thereby limit the amount of light lost.

As can be appreciated from Figures 2 and 3, the lamp is configured at the end portion to match the orientation of the hole or opening 54, purportedly to provide a close fit as follows:

The openings 54, 56 are also sized so as to closely correspond to the diameter of the lamp envelope 32 thereby providing a close fit between the lamp envelope 32 and the mounting cap member 36. In this manner, given the close fit between the lamp envelope 32 and the mounting cap member 36 as well as the snap fit arrangement of the mounting cap member 36, it would be possible to assemble the discharge lamp 30 without the use of adhesives.

Column 5, Lines 54-61 (underline added).

Thus, one of the features of the *Watson et al.* reference was to provide a mounting cap that can eliminate the use of adhesives.

Referring to Figure 3, the mounting cap member is cut into two pieces so that each of the pieces can be independently simply slipped over one end of the arc tube. The respective pieces then can be snapped together and locked into a bottom plate portion or into a housing member.

See Column 6, Lines 35-42, as follows:

As seen in FIG. 3, the mounting cap member 36 can be cut into two pieces 40, 42 thereby making assembly substantially easier. Specifically, by providing the two pieces 40, 42 shown, each piece can be slipped over one of the end segments 34 of the lamp envelope 32, then snapped together and further locked into either the bottom plate portion 44 as shown in FIG. 2, or alternatively, into a housing member 58 as shown in FIG. 3.

By having separate pieces there is also a contention that the amount of heat generated from each electrode will not affect the other electrode because there are separate compartments in each of the two separate snapped together pieces.

Additionally, *Watson et al.* specifically calls for a dome-shaped mounting cap member, purportedly because it has upwardly extending reflecting ridges to provide an optical advantage over other top cap configurations that “are essentially flat.” See Column 6, Lines 3-11.

Thus, it should be appreciated that a person of ordinary skill in this field would be directed by *Watson et al.* to particularly have a dome-shaped configuration to reflect light upward with individual segments 40 and 42 having apertures to receive the end portions of the lamp envelope 32 with such a close fit that no adhesive would be necessary. The end pieces could be separately installed and then snapped together. The end pieces also provide isolating compartments to remove the effect of heat from one electrode to the other electrode.

The *Watson et al.* reference does not teach or suggest any guiding recess to permit a rotational insertion of ends of an arc tube as they rotate in a guiding manner for entering insertion openings. *Watson et al.* also does not suggest an integral bottom wall configuration for providing covering units and guide recesses that combine together to define the insertion opening.

Claim 1 has been amended consistent with the teaching in our specification at Page 14, Lines 17-20 referring to the bottom wall, Page 17, Lines 2-6 related to the holding member, and Page 17, Lines 14-16 referring to the groove.

Thus, Claim 1 defines an opening in a bottom wall of the holding member with a groove positioned in a holding member that extends continuously to the opening formed in the bottom wall. The groove is formed such that at least one end of the arc tube wound around the axis can fit therein and the groove depth will appropriately increase as the distance from the opening decreases. That is, the arc tube of the end portions can be respectively rotated to facilitate a

screw-in mounting which can be further supplemented with adhesive to permanently attach the arc tube.

As can be appreciated, the *Watson et al.* reference does not teach a covering unit extending upward from the bottom wall but rather, teaches split mounting caps with holes on a side of the mounting cap that permits each of the individual arc tube end portions to be mounted on one-half of a mounting cap member with a compartment therein to receive and segregate any heat from each of the end portion electrodes. The mounting cap members can then be snap mounted together into a base, apparently without the requirement of any adhesive.

Our structure provides a guiding groove where the end of the arc tube contacts the surface of the groove. Since a pair of arcuate grooves are provided to extend into the surface of the bottom wall, the arc tubes are literally rotated into the bottom wall while being guided by the surface of the grooves. This permits a positive alignment of the position of the arc tube and prevents any deviation of the arc tube from a direction orthogonal to the axis of the lamp.

The Office Action referred to the *Watson et al.* ridges 50 and 52 for teaching a guiding of an end of the arc tube into the holding member. As can be readily appreciated, the individual pieces or halves of the mounting cap member 40 and 42 are simply slipped over the respective end segments of the lamp envelope. The ridges 50 and 52 are for purposes of “gently rises up to the dome as a concave sculpted shelf that follows the contour of the helix of the lamp envelope 32.” See Column 5, Line 62 to Column 6, Line 11.

Purportedly, this concave sculpted shelf is “aesthetically pleasing for appearances.” Its actual functionality, however, has been clearly defined as “it provides an optical advantage over other top cap configurations that are essentially flat.” Column 6, Lines 5-7.

Thus, the functionality is not for guiding respective ends of an arc tube to screw them into an essentially flat surface, but rather to reflect light upward along the axis of the helical tube. Thus, applicant respectfully traverses the contention that ridges 50 and 52 could teach recesses for guiding the end tubes.

As can be readily appreciated, our claims define a specific structure of our grooves and it is entirely proper to define a function associated with that structure to assist and give meaning without detracting from the actual structural configuration. Applicants dispute that this limitation is a product by process limitation, but rather defines an improved feature in our structure.

The Office Action further contended that the *Watson et al.* reference disclosed a holding unit that allows a pair of lead wires 48 to be supported. Actually, the embodiment in Figures 2 and 3 of *Watson et al.*, which describes the invention, only discloses electrical pin members 48. The electrical pin members are apparently mounted beneath and adjacent a mounting post 46 to connect to an adaptor base not shown.

Our claims define lead wires, not mounting pins, and the lead wires have a supporting unit directly on the holding member for separating the lead wires at the holding member.

Applicants dispute that the *Watson et al.* reference teaches a method of assembling a lamp pursuant to our Claims 12 and 13, since the operation of the separate compartment pieces 42 and 40, and the manner in which they are slipped over an end segment 34 of the arc tube, then the pieces 40 and 42 are “snapped together” for locking into a bottom plate portion is mentioned above. Thus, *Watson et al.* certainly does not teach a method of assembling of the present invention.

Greiler et al. (U.S. Patent No. 5,731,656) was cited to reject Claim 6 for teaching a notch in either the covering unit or the insertion guiding unit that is grooved. *Greiler et al.* discloses in a lamp such as a halogen lamp a “surface abnormality” to prevent any symmetrical rotation of the bulb or tube. Thus, a flange 15B can ensure the appropriate alignment between the ends of the lamp bulb and the terminals of a socket. Our notch facilitates the insertion of lead wires. The *Greiler et al.* reference does not address lead wires, but simply wants to provide a non-rotational symmetry for the appropriate alignment of the lamp tube.

Additionally, the *Greiler et al.* reference does not teach a solution to the deficiencies pointed out above with regards to the *Watson et al.* disclosure.

Claim 7 was rejected over a combination of the *Watson et al.* reference in view of *Bankuti et al.* (U.S. Patent Publication 2002/0105255). The *Bankuti et al.* reference was apparently cited simply for its teaching in Paragraph 20 that the tube could be sealed to the base with an adhesive joint. It certainly does not teach any other feature of, for example, Claim 1, independent Claim 12, or the newly drafted Claim 14.

Additionally, the *Bankuti et al.* reference would suggest adhesive when the *Watson et al.* reference teaches away from the use of adhesive as an advantageous feature.

Given the contradictory teachings of these two references, it becomes apparent that these references could only have been assembled in hindsight from the teachings of our present application.

“When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself.”

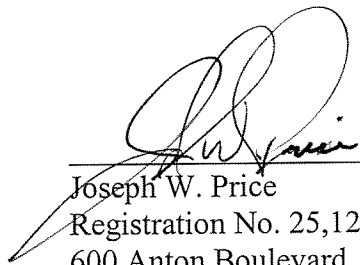
Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143 (Fed. Cir. 1985).

In summary, it is believed that the present application is now allowable over the references of record, and an early notification of the same is requested.

If the Examiner believes a telephone interview will help further the prosecution of the case, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

SNELL & WILMER L.L.P.



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